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SCWDS BRIEFS

A Quarterly Newsletter from the
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Vic Nettles Retired

SCWDS Director Dr. Victor F. Nettles retired November 30, 2000, after a 28-year career at SCWDS. Vic received his Doctor of Veterinary Medicine degree from Auburn University in 1970 and was in private practice for 2 years. He came to SCWDS in March 1972 to accept a position as head of the SCWDS Diagnostic Section and to enter graduate school with SCWDS Director Dr. Frank A. Hayes as his major professor. Vic worked full-time while attending classes and conducting his research, completing his master's and doctorate degrees in 1976 and 1978. He soon gained an international reputation as one of the leaders in the field of wildlife health and disease. When Dr. Hayes retired in 1987, Vic was the obvious choice for the Director's job. The SCWDS Steering Committee, administrators in the College of Veterinary Medicine, and the SCWDS staff were unanimous in the desire to have him fill the position.

During his tenure as Director, Vic has provided strong, productive leadership for SCWDS and has made major contributions to wildlife disease research at regional, national, and international levels. His contributions have been recognized in the form of several awards including the Distinguished Service Award from the Wildlife Disease Association and the Public Service Award from the American Veterinary Medical Association.

Although it is going to be difficult to give up Vic, there is some good news: Vic will be replaced as Director by a highly qualified staff member, Dr. John R. Fischer. John came to

SCWDS in the fall of 1992 as a Postdoctoral Associate after receiving his Ph.D. from the University of Missouri. He previously earned his B.S. and D.V.M. degrees from the same school and had worked for the Missouri Department of Conservation. In 1996, John was offered full-time employment as an Assistant Research Scientist and assumed responsibility for overseeing SCWDS' diagnostic services. Since that time, John has accepted more and more administrative responsibility, and we have come to depend on him for more and more leadership. As with Vic, John was the unanimous choice for Director by everyone. We expect to continue as a leader in the field of wildlife health and disease under his direction. (Prepared by Gary Doster and Randy Davidson)

USDA's Wildlife Authority

Former Montana Senator Dr. John Melcher recently wrote an article for the *United States Animal Health Association Newsletter* on "Wildlife Authority." Dr. Melcher, who is a veterinarian, has been serving as a consultant to the Government Relations Division of the American Veterinary Medical Association (AVMA). Dr. Melcher is well respected among both the veterinary and political communities, and his article challenges the oft heard statement that the Animal and Plant Health Inspection Service (APHIS), USDA, "never has had authority over wildlife." To determine what authority the USDA has over wildlife, Dr. Melcher arranged a meeting with the administrators of Veterinary Services, APHIS, USDA, and the specific General Counsel attorneys who work with APHIS on legal

questions. He was advised by USDA that "based on animal quarantine laws dating back to the early 1880s and modified and amended by subsequent statutes enacted since then, APHIS has authority over wildlife infected with or are carriers or vectors of a disease contagious to livestock or poultry." Dr. Melcher explained that in the case of infected wildlife in a National Park or Wildlife Refuge, APHIS would seek the concurrence of the United States Department of the Interior before exercising their authority. If wildlife are outside of National Parks or Wildlife Refuges, APHIS regulations are administered in cooperation with the state or states involved when the wildlife disease threatens livestock or poultry. Several diseases were mentioned as examples, viz., brucellosis in Yellowstone bison and elk, tuberculosis in Michigan deer, rabies in the Northeast, West Nile virus in birds, and chronic wasting disease in deer and elk. Dr. Melcher predicted APHIS will have "more and more headaches with diseased wildlife" and indicated that the AVMA was "lobbying hard for the necessary funding to meet these problems."

Although APHIS has authority to deal with wildlife that are diseased or are disease carriers, they do not regard their authority as autonomous but rather as concurrent responsibility with other agencies. APHIS's approach has been to deal with disease scenarios involving wildlife through seeking consensus with other affected agencies, including state and federal wildlife management agencies. Their goal has been to develop cooperative programs acceptable to all groups involved in agriculture, public health, and wildlife conservation. Dealing with diseases in free-ranging wildlife populations is inherently difficult, and the likelihood of success by any single agency would be remote because both veterinary and biological capabilities must be applied to the task. Multiple state and federal wildlife resource and animal health agencies must bring their individual expertise to these complex situations, rely on each other, and cooperate extensively to have a chance of success. (Prepared by Victor Nettles)

Leishmaniasis in NY Foxhounds

From August 1999 to March 2000, 20 foxhounds at a Dutchess County, New York, hunt club died or were euthanatized due to infection with the protozoan parasite *Leishmania* spp. of the *donovani* complex. These dogs had a variety of clinical signs including wasting, hemorrhage, seizures, weight loss, hair loss, skin lesions, kidney failure, and swollen limbs and joints. Testing revealed that 42% of adult dogs at the kennel were serologically positive for antibodies against *Leishmania*, and the organism was isolated from 15 seropositive dogs. However, hunt club employees, dogs at other hunt clubs, horses, and wild rodents in the vicinity were seronegative.

Leishmaniasis is a zoonotic disease of humans and dogs caused by protozoa of the genus *Leishmania*. More than 20 species of *Leishmania* are known to cause disease in humans, and each year approximately 400,000 people are infected worldwide. Humans, wild rodents, domestic and wild canids, and other species may serve as reservoirs of the organisms. *Leishmania* organisms usually are transmitted by sandfly vectors, although transmission among dogs has been documented via direct contact.

There is great variation in the clinical picture of leishmaniasis. In humans, clinical disease can range from a few mild skin lesions to life-threatening, multi-organ involvement. In dogs, common clinical signs of leishmaniasis include weight loss, enlarged lymph nodes, arthritis, and skin lesions. Some dogs infected with *Leishmania* may not show clinical signs, although they may develop antibodies against the organism. Dogs that show clinical signs of disease are more likely to die from leishmaniasis than are clinically affected humans. Leishmaniasis in humans previously was thought to occur in three forms: cutaneous, mucocutaneous, and visceral. However, apparent overlap of these forms suggests that the different forms are part of a spectrum of the same disease rather than separate entities. The clinical picture in an affected individual

ultimately depends on the infecting species of *Leishmania* and the immune status of the host.

Leishmaniasis previously was considered an exotic disease in nearly all of the United States and most cases were diagnosed in people and dogs after they returned from endemic areas such as Mediterranean countries or South America. However, cutaneous leishmaniasis occurs in humans in south-central Texas, and a few cases of visceral leishmaniasis have been reported in dogs in Oklahoma, Ohio, and Texas that did not travel outside the United States. The latest state to be added to this list is New York, and subsequent investigations suggest that leishmaniasis may be more common than previously thought.

The Centers for Disease Control and Prevention (CDC), Walter Reed Army Institute of Research, New York State Department of Health, North Carolina State University College of Veterinary Medicine, and other organization have been investigating the epidemiology of leishmaniasis in North America. Studies during the last year found that approximately 1.2% of 7,000 dogs were seropositive in 19 states and Ontario, Canada, and *Leishmania* organisms were cultured from dogs in 5 states and Ontario. In response to questions concerning wild reservoirs, samples were tested from more than 250 wild canids native to the southeastern United States or translocated from central or western states and all were seronegative.

Much remains to be learned regarding the current situation with canine leishmaniasis in North America. The ultimate source of *Leishmania* infections in the foxhounds in New York and 18 other states and Ontario remains unknown. A single introduction of the organism from a foreign source appears less likely in view of the widespread distribution of leishmaniasis in U.S. and Canadian foxhounds. Questions remain regarding a possible role for wild reservoirs in this scenario, and additional serosurveys are planned for foxes in enclosures where the infected New York hounds had hunted. Modes of transmission of the protozoa among dogs also are undetermined, and vector

studies are pending where infected hounds have been found. If direct contact is significant in transmission among dogs, the extensive travel and contact of numerous foxhound packs could be a factor in the widespread distribution of the organism. In response to this possibility, the Masters of Foxhounds Association of America (MFHA) canceled their foxhound shows for the 2000 season and urged members to take additional precautions to restrict contact between kennels and have their hounds tested. (Prepared by Karen Gruszynski and John Fischer)

Controlling CWD in Captive Elk

Chronic wasting disease (CWD), a transmissible spongiform encephalopathy of cervids, occurs in free-ranging mule deer, elk, and white-tailed deer in a small endemic focus in northeastern Colorado and south-central Wyoming. The disease first was detected in captive elk in South Dakota in 1997 and since has been detected in farmed elk in Colorado, Montana, Nebraska, and Oklahoma. In an effort to control CWD in captive elk, the North American Elk Breeders Association (NAEBA) spearheaded development of a Model Program for Surveillance, Control, and Eradication of Chronic Wasting Disease in Domestic Elk. Relying on voluntary testing of elk, this model program set minimum standards for herd surveillance and monitoring and has been used as a guide for several state CWD programs.

A national CWD certification program for captive elk, which is a revision of the NAEBA model, currently is being developed by Veterinary Services of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service. A working group that assisted in development of the program consisted of representatives from the captive cervid industry, federal and state departments of agriculture, state wildlife agencies, SCWDS, universities, and veterinary diagnostic laboratories. The proposed national program provides minimum guidelines for state certification programs and eventually would permit interstate movement of captive elk only

from herds participating in state certification programs. The proposed program includes depopulating CWD-positive herds and indemnifying owners. Although this program may be used as a model for CWD control in other captive cervid species in the future, it is intended only for captive elk at this time. A resolution supporting the development and implementation of the proposed national CWD program was passed at the annual meeting of the U.S. Animal Health Association held in October 2000.

A national program to control CWD in captive elk also is being developed in Canada. The Canadian Food Inspection Agency is in the process of making CWD a federal reportable disease. The policy provides for destruction of high-risk animals, with financial compensation to the owners. The risk status of elk is based on the assumptions that transmission of CWD could occur up to 18 months prior to death of an infected elk and that the maximum incubation period is 36 months.

Considerable surveillance of both wild and captive cervids in Canada has detected CWD only in captive elk in Saskatchewan. The first confirmed case in Saskatchewan was diagnosed in a captive elk in 1996, and CWD now has been detected in several herds. To date, all positive Canadian elk are linked to sales or movement from a single Canadian herd that received elk prior to 1990 from a U.S. herd in which CWD subsequently was diagnosed. This type of epidemiological information illustrates the need for national programs in the United States and Canada to prevent further spread of CWD among captive elk herds. (Prepared by Joe Gaydos)

Drug Use Protocol for Wildlife

There are multiple federal and state agencies that regulate drug administration to wildlife. Controlled substances routinely used by wildlife managers to capture and immobilize wildlife are regulated by the Drug Enforcement Administration (DEA). However, a second federal agency, the Food and Drug

Administration (FDA), also regulates drug use in animals under the Animal Medicinal Drug Use Clarification Act (AMDUCA). Under AMDUCA, the administration of any drug to food-producing animals (including wildlife) must be done through a veterinarian/client/patient relationship. For wildlife management activities, the "patient" would be the wild animal and the "client" would be the wildlife agency employee who is working with or being directed by a veterinarian. This Act applies not only to controlled substances but also to other pharmaceuticals such as antibiotics, hormones, and therapeutics.

A Model Protocol for Use of Pharmaceuticals in Wildlife prepared by the Western Wildlife Health Cooperative may be useful to all wildlife biologists who must comply with AMDUCA through the use of drugs for immobilization or therapeutic reasons. The Model was reviewed by the Fish and Wildlife Health Task Force of the International Association of Fish and Wildlife Agencies and received an endorsement from that organization. Within the Model is an excellent explanation of how the federal laws apply to field operations of wildlife management agencies and an outline for how to establish a veterinary/client/patient relationship. Included are guidelines for dealing with drug withdrawal times, human safety concerns, animal welfare, training of personnel, investigational drugs, record keeping, and drug security. Persons who are interested in the Model Protocol can request a copy from SCWDS or from Dr. Jim deVos of the Arizona Game and Fish Department by telephone at 602-789-3247 or e-mail jdevos@gf.state.az.us (Prepared by Vic Nettles)

West Nile Virus Update

Surveillance programs initiated in response to the 1999 West Nile virus (WNV) outbreak indicate geographic expansion of the virus throughout the northeastern United States and into the mid-Atlantic region. WNV has been isolated from more than 4,100 birds in 12 states and the District of Columbia, including the recent additions of Virginia and North Carolina.

Reports of WNV infections in American crows, other avian species, and mosquitoes are being accompanied by reports of neurologic disease caused by WNV in humans, horses, and other mammals. At least 26 individual free-living mammals have tested positive for WNV or antibodies against it. Included are big brown bats, raccoons, squirrels, and an eastern chipmunk.

SCWDS is continuing to cooperate with the Division of Public Health of the Georgia Department of Human Resources to handle wild bird surveillance in Georgia. This includes dead bird surveillance and testing free-flying birds for the virus and antibodies to the virus. To date, SCWDS field personnel have collected blood and serum samples from more than 1,500 free-flying birds in 34 Georgia counties. Tissues were collected from over 200 of these birds. In addition, tissue samples have been collected from more than 100 birds submitted as part of the dead bird surveillance. Collections from free-ranging and dead birds will continue through the fall and winter. Analysis of the collected samples has started and thus far all results are negative. (Prepared by Danny Mead and David Stallknecht)

New K9 Distemper Study

Canine distemper (CD) is recognized as a major disease problem among wild carnivores in many parts of the United States, and SCWDS case records clearly demonstrate that CD is the major cause of disease mortality among southeastern raccoons. The importance of CD as a natural mortality factor among gray foxes and raccoons and the susceptibility of other indigenous mustelids to the virus make CD one of the more important diseases affecting wildlife in the Southeast.

SCWDS personnel recently launched a research project to investigate the molecular epizootiology of CD virus in collaboration with Dr. Beth Williams in the Department of Veterinary Science at the University of Wyoming. The overall goal is to gain a better understanding of the epizootiology of CD virus

among wildlife populations so that its impact can be better assessed and managed when possible and appropriate. We plan to acquire at least 200 virus isolates of canine distemper for the analysis. In order to achieve this goal we need your help and cooperation. If you have a confirmed or strongly suspected CD case in a raccoon, fox, or other wild carnivores, please contact Dr. Danny Mead by telephone at 706-542-8790 or e-mail dmead@vet.uga.edu (Prepared by Danny Mead)

Three Staff Additions

The SCWDS workforce has been strengthened by the addition of three more student/staff members: Dr. Cynthia Tate, Mr. Michael Yabsley, and Ms. Sarah Cross. All three will be working under the direction of Dr. Randy Davidson on his NIH-funded study of ehrlichiosis that was announced in the last issue of the SCWDS BRIEFS (Vol. 16, No. 2). Cynthia and Michael will be SCWDS graduate students working on Ph.D. degrees. Sarah will be working on the *Ehrlichia* project while she completes her M.S. degree at The University of Georgia's Warnell School of Forest Resources (WSFR). Sarah is considering continuing her graduate studies and also entering a Ph.D. degree program at SCWDS.

Of course, as with all SCWDS graduate students, Cynthia, Michael, and Sarah will have considerable duties as regular working staff members in addition to their graduate coursework and research responsibilities. As a veterinarian, Cynthia's major duty will be assisting our other veterinarians in the diagnostic laboratory. Michael's expertise as a parasitologist will make him a valuable addition to our technical staff. Sarah is assisting on deer herd health evaluations and other field work while collecting data for the GIS aspects of the ehrlichiosis project. Dr. Davidson is co-staffed at WSFR, and a large part of Sarah's work on the ehrlichiosis project will be done there with Dr. Helen Whiffen.

Cynthia received her D.V.M. degree in May of this year from Virginia-Maryland Regional

College of Veterinary Medicine in Blacksburg, Virginia. As an undergraduate and graduate student, Cynthia has had a variety of interesting and exciting jobs ranging from studying population dynamics of birds and bats in lowland rainforest in Pahang, West Malaysia, to assisting with the study of avian malaria in forest birds in the Hawaii Volcanoes National Park in Hawaii.

Michael hails from South Carolina where he earned B.S. and M.S. degrees from Clemson University. His M.S. research project involved research on the protozoan parasite *Trypanosoma cruzi* in wildlife. Michael has authored articles accepted by such prestigious scientific publications as the *Journal of Parasitology* and the *Proceedings of the Helminthological Society of Washington*.

Sarah's M.S. degree research dealt with stream-dwelling amphibians in the mountains of coastal Washington. Prior to coming to Georgia, she pursued a variety of career interests, including sea turtle work on Cumberland Island, Georgia. She also worked for the American Association for the Advancement of Science in Washington, D.C., and taught in elementary and middle schools in Tennessee.

All three of these bright, energetic young people come to us with many academic honors and a great deal of professional experience gained as undergraduate and graduate students, and all hold memberships in numerous professional organizations. We are pleased and fortunate to have them with us. (Prepared by Gary Doster)

Information presented in this Newsletter is not intended for citation in scientific literature. Please contact the Southeastern Cooperative Wildlife Disease Study if citable information is needed.

Recent back issues of *SCWDS BRIEFS* can be accessed on the Internet at SCWDS.org.